

## CLASS EXERCISES

Determine the values of  $a$ ,  $b$ , and  $c$ . Then solve each equation using the quadratic formula.

- |                        |                     |                     |
|------------------------|---------------------|---------------------|
| 1. $2x^2 - 5x - 3 = 0$ | 2. $5x^2 - 7x = 6$  | 3. $x^2 + 6x = 10$  |
| 4. $x^2 - 10x = -13$   | 5. $2x^2 + 3x = -8$ | 6. $3x^2 - 2x = -1$ |

## PRACTICE EXERCISES



Use technology where appropriate.

Solve each equation using the quadratic formula. Write solutions in simplest form.

- |                           |                          |                          |
|---------------------------|--------------------------|--------------------------|
| 1. $2x^2 + 3x - 5 = 0$    | 2. $x^2 + 8x + 12 = 0$   | 3. $8x^2 - 2x - 3 = 0$   |
| 4. $2x^2 - 7x + 3 = 0$    | 5. $3x^2 - 4x - 2 = 0$   | 6. $4x^2 - 3x = 9$       |
| 7. $5x^2 + x = 3$         | 8. $3z^2 + 9z = 27$      | 9. $r^2 + 12r = 18$      |
| 10. $2r^2 + 13r + 16 = 0$ | 11. $2z^2 + z - 28 = 0$  | 12. $x^2 - 9x + 15 = 0$  |
| 13. $t^2 + 10t + 11 = 0$  | 14. $3s^2 + 4s + 10 = 0$ | 15. $x^2 - 12x + 25 = 0$ |
| 16. $8x^2 + 2x - 15 = 0$  | 17. $x^2 - 2x + 5 = 0$   | 18. $2x^2 + 4x + 15 = 0$ |

Solve each equation using the quadratic formula. Write the solutions in decimal form, to the nearest hundredth.

- |                         |                          |                          |
|-------------------------|--------------------------|--------------------------|
| 19. $2x^2 - 5x - 3 = 0$ | 20. $3x^2 - 10x + 5 = 0$ | 21. $3x^2 + 4x - 3 = 0$  |
| 22. $6x^2 - 5x - 1 = 0$ | 23. $7x^2 - x - 12 = 0$  | 24. $5x^2 + 8x - 11 = 0$ |

Solve each equation using the quadratic formula. Write solutions in simplest form. In Exercises 43–48, solve for  $x$  in terms of  $a$ .

- |                             |                                     |                                     |
|-----------------------------|-------------------------------------|-------------------------------------|
| 25. $4x^2 = 4x + 3$         | 26. $2x^2 = 7x - 8$                 | 27. $x^2 + 3x + 5 = 0$              |
| 28. $x^2 + 7x - 8 = 0$      | 29. $3x^2 + 5x = 7$                 | 30. $4x^2 + 4x = 22$                |
| 31. $7x^2 - 2x = 25$        | 32. $5x^2 - 3x = 10$                | 33. $2x^2 - 1 = 5x$                 |
| 34. $3x^2 + 2 = 8x$         | 35. $2x^2 + x = \frac{1}{2}$        | 36. $2x^2 - x = \frac{1}{8}$        |
| 37. $9x^2 + 3x + 4 = 0$     | 38. $15x^2 + 2x + 1 = 0$            | 39. $5x^2 = 2x - 8$                 |
| 40. $6x^2 - x + 24 = 0$     | 41. $\frac{x+2}{5} = \frac{3}{x+1}$ | 42. $\frac{x-3}{2} = \frac{6}{x-2}$ |
| 43. $2a^2x^2 - 6ax = -5$    | 44. $3a^2x^2 + 8ax + 5 = 0$         |                                     |
| 45. $2x^2 + ax^2 = 4x + 4a$ | 46. $5a^2x^2 - 10ax = 12$           |                                     |
| 47. $x^2 + 2ax = 25a^2$     | 48. $ax^2 + 3a^2x - 10a^3 = 0$      |                                     |

## The Quadratic Formula

Solve each equation using the quadratic formula. Write solutions in simplest form.

1.  $x^2 + 5x + 4 = 0$  \_\_\_\_\_

2.  $y^2 - 2y - 8 = 0$  \_\_\_\_\_

3.  $2z^2 - 3z + 1 = 0$  \_\_\_\_\_

4.  $6x^2 + 5x - 4 = 0$  \_\_\_\_\_

5.  $y^2 + 3y - 3 = 0$  \_\_\_\_\_

6.  $5x^2 + 7x + 3 = 0$  \_\_\_\_\_

7.  $x^2 + x = 6$  \_\_\_\_\_

8.  $y^2 - 13y = 48$  \_\_\_\_\_

9.  $5z^2 = 8z - 6$  \_\_\_\_\_

10.  $3y^2 = 6y - 8$  \_\_\_\_\_

11.  $x^2 - 49 = 0$  \_\_\_\_\_

12.  $2y^2 + 5y = 0$  \_\_\_\_\_

Solve each equation using the quadratic formula. Write the solutions in decimal form, to the nearest hundredth.

13.  $x^2 + 3x - 3 = 0$  \_\_\_\_\_

14.  $x^2 - 4x + 1 = 0$  \_\_\_\_\_

15.  $4y^2 - 6y - 3 = 0$  \_\_\_\_\_

16.  $9y^2 - 6y - 7 = 0$  \_\_\_\_\_

## Application

17. **Number Theory** Find a number such that 35 less than its square is twice the original number.

\_\_\_\_\_

## MIXED PRACTICE

Solve by factoring.

18.  $2x^2 - 3x = 0$  \_\_\_\_\_

19.  $2y^2 + y - 10 = 0$  \_\_\_\_\_

Solve by completing the square.

20.  $z^2 - 5z - 14 = 0$  \_\_\_\_\_

21.  $2x^2 - 4x - 3 = 0$  \_\_\_\_\_

Solve by using the quadratic formula.

22.  $6y^2 - 5y + 1 = 0$  \_\_\_\_\_

23.  $z^2 + 3z + 9 = 0$  \_\_\_\_\_